

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A semiconductor integrated circuit device, comprising:

a semiconductor element being formed on a support substrate;

~~a multi-layer wiring structure being formed in an insulation film on the support substrate, said multi-layer wiring structure comprising at least one connection hole and at least one metal wiring layer; and~~

a heat conduction part formed in an insulation film on the support substrate ~~being formed of the same conductive materials as the connection hole and the metal wiring layer, said heat conduction part extending toward an upper layer side along a path different from a wiring path~~ comprising:

~~a connection hole and a plurality of metal wiring layers spaced apart from each other and arranged in a vertical stack, for signal transmission, the heat conductor part including at least one metal wiring layer not being for signal transmission~~

and a plurality of metal via layers connected to the metal wiring layers and coupling the metal wiring layers with each other,

wherein the metal wiring layers are arranged such that they may not transmit a signal to another element of the semiconductor integrated circuit device that is arranged in the same horizontal plane as the heat conduction part.

2. (Original) The semiconductor integrated circuit device as claimed in claim 1, wherein the support substrate comprises one of a semiconductor substrate and a SOI substrate.

3. (Original) The semiconductor integrated circuit device as claimed in claim 1, wherein the heat conduction part comprises an uppermost wiring layer.

4. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 3, further comprising an aperture in the insulation film exposing on the uppermost wiring layer in the insulation film.

5. (Original) The semiconductor integrated circuit device as claimed in claim 1, wherein the semiconductor element comprises a MOS transistor and said MOS transistor comprises one of a fully-depletion type SOI transistor, a partially-depletion type SOI transistor and a SON transistor.

6. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 5, wherein the heat conduction part is directly connected to a gate electrode of the MOS transistor ~~directly or~~ the heat conduction part is coupled with the gate electrode of the MOS transistor through another element. ~~via the connection hole and the metal wiring layer for signal transmission.~~

7. (Original) The semiconductor integrated circuit device as claimed in claim 5, wherein the heat conduction part is connected to one of a source region and a drain region of the MOS transistor directly or via the connection hole and the metal wiring layer for signal transmission.

8. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 5, ~~wherein the heat conduction part is connected to~~ further comprising an element separation film arranged to electrically separate the MOS transistor, and wherein the heat conduction part is directly connected to the element separation film or

the heat conduction part is coupled with the heat conduction part through another element ~~via the connection hole and the metal wiring layer for signal transmission.~~

9. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 1, wherein the heat conduction part comprises at least one dummy metal that is not connected to an element of the semiconductor integrated circuit device that is capable of conducting a signal transmission ~~used as an electric wire, said dummy metal being disposed at the same coordinate for each layer of the multi-layer wiring structure and being connected to each other via a connection hole.~~

10. (Currently Amended) A semiconductor integrated circuit device, comprising:

a plurality of semiconductor elements being formed on a support substrate;

a plurality of function modules being formed by modularizing the plurality of semiconductor elements for each function thereof; and

at least one heat conduction part comprising:

a plurality of metal wiring layers spaced apart from each other and arranged in a vertical stack, and

a plurality of metal via layers connected to the metal wiring layers and coupling the metal wiring layers with each other,

wherein the metal wiring layers are arranged such that they may not transmit a signal to another element of the semiconductor integrated circuit device that is arranged in the same horizontal plane as the heat conduction part, and

~~the same conductive materials as a connection hole and a metal wiring layer constituting a multi-layer wiring structure, said heat conduction part extending toward an upper layer side along a path different from a wiring path comprising a connection hole and a metal wiring layer for signal transmission, the heat conductor part including at least one metal wiring layer not being for signal transmission,~~

wherein at least one of the plurality of function modules comprises one or more of the at least one heat conduction part.

11. (Original) The semiconductor integrated circuit device as claimed in claim 10, wherein the heat conduction part is arranged corresponding to heat capacity of a gate electrode of each of the plurality of function modules.

12. (Original) The semiconductor integrated circuit device as claimed in claim 10, further comprising:

at least one field cell being disposed in an empty space between the function modules, and

wherein one or more of the at least one field cell comprises one or more of the at least one heat conduction part.

13. (Original) The semiconductor integrated circuit device as claimed in claim 12, wherein the field cell having the heat conduction part is disposed corresponding to heat capacity of a gate electrode in a function module.

14. (Withdrawn) A method of fabricating a standard cell type semiconductor integrated circuit device having a plurality of semiconductor elements, the method comprising the steps of:

modularizing the plurality of semiconductor elements for each function thereof so as to form a plurality of function modules;

maintaining the plurality of function modules as standard cells in a library; and

arranging the standard cells in the standard cell type semiconductor integrated circuit device,

wherein at least one of the standard cells comprises a heat conduction part, said heat conduction part comprising the same conductive materials as a connection hole and a metal wiring layer constituting a multi-layer wiring structure, said heat conduction part extending toward an upper layer side along a path different from a wiring path comprising a connection hole and a metal wiring layer for signal transmission.

15. (Withdrawn) The method as claimed in claim 14, wherein the standard cell type semiconductor integrated circuit device comprises at least one field cell being arranged in an empty space between the function modules, said field cell comprising a heat conduction part comprising the same conductive materials as a connection hole and a metal wiring layer constituting a multi-layer wiring structure, said heat conduction part extending toward an upper layer side along a path different from a wiring path comprising a connection hole and a metal wiring layer for signal transmission.

16. (Currently Amended) A semiconductor integrated circuit device, comprising:
a semiconductor element being formed on a support substrate; and

a multi-layer wiring structure being formed in an insulation film on the support substrate, said multi-layer wiring structure comprising:

a signal transmitting part comprising at least one connection hole via layer and at least one metal wiring layer to transmit a signal,[[;]] and

a heat conduction part arranged above the signal transmitting part, said heat conduction part extending toward an upper layer of the semiconductor integrated circuit device, the heat conduction part comprising a first metal layer, a first connection via layer, and a second metal layer, wherein the metal layers are not used for the heat conduction part is arranged such that it may not transmit a signal to another element of the semiconductor integrated circuit device that is arranged in the same horizontal plane as the heat conduction part transmission.

17. (Currently Amended) The semiconductor integrated circuit device of claim 16, further comprising:

a second ~~connection~~ via layer connecting the first metal layer to the at least one metal wiring layer.